

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit: :
: :
Examiner: :
: : CYANINE DYES AS LABELING
In re application of: : REAGENTS FOR DETECTION
Alan S. Waggoner : OF BIOLOGICAL AND OTHER
: MATERIALS BY LUMINESCENCE
Serial No.: : METHODS
: :
Filing Date: :

PRELIMINARY AMENDMENT

December 19, 2000

Commissioner for Patents
Washington, DC 20231

Sir:

Please amend the application captioned above as follows:

In the Specification:

Prior to the section entitled "BACKGROUND OF THE INVENTION", please add:

--CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of co-pending United States application Serial No. 08/745,712, filed November 12, 1996, which is a continuation-in-part of U.S. application Serial No. 07/831,759, filed September 22, 1992, now U.S. Patent No. 5,627,027, which is a continuation of U.S. application Serial No. 06/854,347, filed April 18, 1986, now abandoned.--

On page 10, line 29, delete "Serial No. 711,065, filed March 12, 1985" and substitute therefor --U.S. Patent No. 4,621,911--;

On page 35, line 5, delete "Sephadex" and substitute therefor --SEPHADEX[®]--;

On page 44, line 5, delete "Spherisorb" and substitute therefor --SPHERISORB[®]--;

On page 44, line 6, delete "Varian Vista" and substitute therefor --VARIAN VISTA--;

On page 46, line 7, delete "Vistra DNA" and substitute therefor --VISTRA DNA[®]--.

In the Abstract:

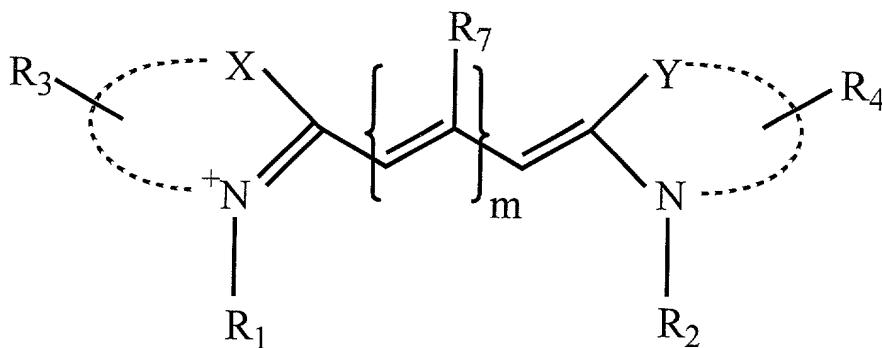
Delete lines 21-35 of the Abstract at pages 52 and 53 of the application.

In the Claims:

Please cancel claims 1-8.

Please add the following claims:

--9. A method for imparting luminescence to a component which contains or is derivatized to contain amine, sulfhydryl or hydroxy groups in a liquid, said method comprising:
adding to a liquid containing said component, a cyanine dye having the structure



wherein:

the dotted lines each represent carbon atoms necessary for the formation of said cyanine dye;

X and Y are independently selected from the group consisting of O, S, and CH₃-C-CH₃;

m is an integer from 1-4;

at least one of the groups R₁, R₂, R₃, R₄ and R₇ contains a reactive group, said group covalently reactive with amine, sulfhydryl or hydroxy groups; and

reacting said cyanine dye with said component under reaction conditions sufficient for forming a covalent bond between said reactive group and said amine, sulfhydryl or hydroxy group so that said dye labels said component.

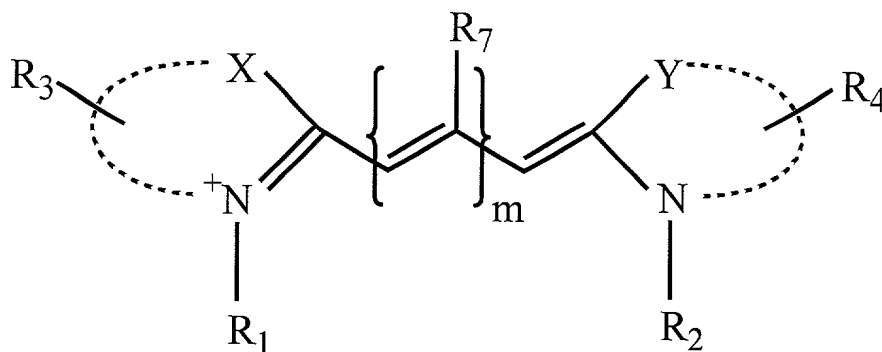
10. The method recited in claim 9 wherein said component is a molecule selected from the group consisting of antibodies, proteins, peptides, enzyme substrates, hormones, lymphokines, metabolites, receptors, antigens, haptens, lectins, toxins, carbohydrates, sugars, oligosaccharides, polysaccharides, nucleotides, derivatized nucleotides, nucleic acids, deoxy nucleic acids, derivatized nucleic acids, derivatized deoxy nucleic acids, DNA fragments, RNA fragments, derivatized DNA fragments, derivatized RNA fragments and drugs.

11. The method recited in claim 9 wherein said component is selected from the group consisting of soluble polymers, plastics and glass surfaces.

12. The method recited in claim 9 wherein said reactive group is selected from the group consisting of isothiocyanate, isocyanate, phosphoramidite, monochlorotriazine, dichlorotriazine, mono- or di- halogen substituted pyridine, mono- or di- halogen substituted diazine, aziridine, sulfonyl halide, acid halide, hydroxysuccinimide ester, hydroxy sulfosuccinimide ester, imido ester, glyoxal and aldehyde.

13. A component labeled with a luminescent cyanine dye comprising:

a component having an amino, sulfhydryl or hydroxy group covalently bound to a luminescent cyanine dye having the structure



wherein:

the dotted lines each represent carbon atoms necessary for the formation of said cyanine dye;

X and Y are independently selected from the group consisting of O, S, and $\text{CH}_3\text{-C-CH}_3$;

m is an integer from 1-4; and

at least one R_1 , R_2 , R_3 , R_4 and R_7 contains a reactive group, covalently reactive with amine, sulfhydryl or hydroxy nucleophiles.

14. The component recited in claim 13 wherein said component is a molecule selected from the group consisting of antibodies, proteins, peptides, enzyme substrates, hormones, lymphokines, metabolites, receptors, antigens, haptens, lectins, toxins, carbohydrates, sugars, oligosaccharides, polysaccharides, nucleotides, derivatized nucleotides, nucleic acids, deoxy nucleic acids, derivatized nucleic acids, derivatized deoxy nucleic acids, DNA fragments, RNA fragments, derivatized DNA fragments, derivatized RNA fragments and drugs.

15. The component recited in claim 13 wherein said component is selected from the group consisting of soluble polymers, plastics and glass surfaces.

16. The component recited in claim 13 wherein said reactive group is selected from the group consisting of isothiocyanate, isocyanate, phosphoramidite, monochlorotriazine,

dichlorotriazine, mono- or di- halogen substituted pyridine, mono- or di- halogen substituted diazine, aziridine, sulfonyl halide, acid halide, hydroxysuccinimide ester, hydroxy sulfosuccinimide ester, imido ester, glyoxal and aldehyde.--

CONCLUSION

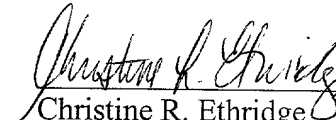
This application is a continuation of co-pending United States application Serial No. 08/745,712, filed November 12, 1996, which is a continuation-in-part of U.S. application Serial No. 07/831,759, filed September 22, 1992, now U.S. Patent No. 5,627,027, which is a continuation of U.S. application Serial No. 06/854,347, filed April 18, 1986, now abandoned.

Original claims 1-8 have been deleted and claims 9-16 have been added to the instant application. Present pending claims 9-16 are presented herein for consideration. Support for the added claims can be found, for example, on page 2, lines 25-31; page 3, lines 20-27; from page 4, line 19 to page 9, line 8; page 10, lines 1-15; from page 15, line 7 to page 17, line 31; from page 18, line 25 to page 27, line 2; in the examples, drawings and elsewhere in the specification. Accordingly, no new matter has been introduced by the addition of claims 9-16.

Entry of this Preliminary Amendment prior to substantive review of the instant application, and allowance of all claims 9-16 are earnestly solicited.

If the undersigned can be of assistance in advancing the application to allowance, the Examiner may contact the undersigned at the number set forth below.

Respectfully submitted,


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